MC 87-I-35F(P)

PRELIMINARY REPORT
INDUSTRY SERIES

1987 Census of Manufactures

MC87-I-35F(P)
Issued July 1989

OFFICE AND COMPUTING MACHINES

Industries 3571, 3572, 3575, 3577, 3578, and 3579

INTRODUCTION

This report presents preliminary statistics from the 1987 Census of Manufactures for those establishments classified in the industries listed above. These data will be superseded by a more comprehensive final paperbound report. The method of data collection and use of administrative data are discussed in detail in the appendix.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The definitions of these industries are the same as those used in the 1987 Standard Industrial Classification (SIC) Manual.[1]

INDUSTRY 3571, ELECTRONIC COMPUTERS

In the 1987 Census of Manufactures, Industry 3571, Electronic Computers, had employment of 149.7 thousand.

The total value of shipments for establishments classified in this industry was $33.4 billion. The products primary to this industry appear in table 2 and aggregated to $29.4 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $15.3 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3572, COMPUTER STORAGE DEVICES

In the 1987 Census of Manufactures, Industry 3572, Computer Storage Devices, had employment of 42.4 thousand.

The total value of shipments for establishments classified in this industry was $6.3 billion. The products primary to this industry appear in table 2 and aggregated to $7.0 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $3.2 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3575, COMPUTER TERMINALS

In the 1987 Census of Manufactures, Industry 3575, Computer Terminals, had employment of 14.1 thousand.

The total value of shipments for establishments classified in this industry was $1.7 billion. The products primary to this industry appear in table 2 and aggregated to $2.6 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $710.5 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.

In the 1987 Census of Manufactures, Industry 3577, Computer Peripheral Equipment, N.E.C., had employment of 85.6 thousand.

[1] **Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

Address inquiries to Bureau of the Census, Industry Division, Washington, DC 20233, or call **JoAnna Nguyen** (301) 763-7304.

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The total value of shipments for establishments classified in this industry was $16.0 billion. The products primary to this industry appear in table 2 and aggregated to $13.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $8.0 billion in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT

In the 1987 Census of Manufactures, Industry 3578, Calculating and Accounting Equipment, had employment of 12.8 thousand. The employment figure was 17 percent below the 15.4 thousand reported in 1982.

The total value of shipments for establishments classified in this industry was $1.5 billion. The products primary to this industry appear in table 2 and aggregated to $1.2 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $612.3 million in 1987. Data on specific materials consumed appear in table 3.

INDUSTRY 3579, OFFICE MACHINES, N.E.C.

In the 1987 Census of Manufactures, Industry 3579, Office Machines, N.E.C., had employment of 28.9 thousand. The employment figure was 34 percent below the 43.7 thousand reported in 1982. Compared with 1986, employment in 1987 decreased 20 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The total value of shipments for establishments classified in this industry was $3.3 billion. The products primary to this industry appear in table 2 and aggregated to $3.3 billion in 1987.

The cost of materials and services used by establishments in this industry amounted to $1.5 billion in 1987. Data on specific materials consumed appear in table 3.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in the tables in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

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Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Table 1. Historical Statistics for the Industry: 1987 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendix.]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (percent)	Coverage (percent)
INDUSTRY 3571, ELECTRONIC COMPUTERS[5]															
1987 Census	(NA)	989	464	149.7	4 874.4	53.9	104.1	1 147.2	18 015.5	15 337.4	33 390.8	1 216.3	5 100.8	(NA)	(NA)
INDUSTRY 3572, COMPUTER STORAGE DEVICES[5]															
1987 Census	(NA)	105	64	42.4	1 423.2	14.4	29.8	324.4	3 258.0	3 188.6	6 322.9	336.9	995.4	(NA)	(NA)
INDUSTRY 3575, COMPUTER TERMINALS[5]															
1987 Census	(NA)	110	60	14.1	418.7	5.2	10.0	117.0	963.1	710.5	1 733.8	54.0	288.0	(NA)	(NA)
INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.[5]															
1987 Census	(NA)	550	253	85.6	2 918.9	30.2	66.3	621.6	7 988.3	7 992.1	15 967.5	443.8	2 585.8	(NA)	(NA)
INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT[6]															
1987 Census	(NA)	101	57	12.8	379.1	5.8	12.5	119.5	844.7	612.3	1 456.8	38.9	262.6	(NA)	(NA)
1986 ASM[7]	(NA)	(NA)	(NA)	5.1	199.7	2.2	6.2	77.1	606.3	416.0	1 026.4	19.7	157.2	(NA)	(NA)
1985 ASM[7]	(NA)	(NA)	(NA)	5.5	195.5	2.2	6.3	68.5	485.7	403.7	945.9	25.5	185.2	(NA)	(NA)
1984 ASM[7]	(NA)	(NA)	(NA)	9.1	250.1	3.9	10.0	68.3	695.5	507.5	1 188.9	64.6	258.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.7	302.4	6.8	13.5	108.0	627.8	686.2	1 302.9	48.3	264.8	(NA)	(NA)
1982 Census	65	70	42	15.4	292.2	7.2	13.9	107.8	815.0	676.5	1 487.3	52.7	320.6	74	77
1981 ASM	(NA)	(NA)	(NA)	15.5	297.9	6.8	12.9	79.7	689.7	670.0	1 384.6	64.2	275.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	19.1	331.5	8.0	16.5	111.0	763.6	793.6	1 518.2	61.0	395.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	18.7	260.2	9.2	19.1	99.8	710.1	621.1	1 302.2	68.6	325.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	18.6	241.9	10.6	19.2	101.6	485.7	585.6	1 063.5	61.4	247.0	(NA)	(NA)
1977 Census	60	64	31	17.1	220.7	10.4	18.1	92.9	394.8	450.5	850.0	56.3	218.2	84	77
1976 ASM	(NA)	(NA)	(NA)	19.7	243.1	10.7	21.9	107.4	409.7	491.5	960.8	31.6	280.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	20.1	222.6	12.2	24.2	112.4	360.8	424.8	853.8	28.7	264.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	24.7	257.6	16.5	32.2	154.6	460.0	491.1	891.0	28.8	348.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	23.1	222.9	16.8	33.1	147.2	469.0	352.0	802.4	24.6	266.4	(NA)	(NA)
1972 Census	74	79	30	22.5	207.2	17.9	33.4	152.5	407.0	256.7	637.1	19.0	216.7	97	86
INDUSTRY 3579, OFFICE MACHINES, N.E.C.															
1987 Census	(NA)	206	106	28.9	841.9	13.6	26.7	267.7	1 859.5	1 478.5	3 316.4	120.6	831.3	(NA)	(NA)
1986 ASM	(NA)	(NA)	(NA)	35.9	1 018.3	15.8	30.1	322.0	2 652.0	1 906.8	4 630.9	164.9	1 104.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	38.8	1 091.9	16.5	31.7	331.0	3 147.9	2 347.5	5 383.5	256.6	1 226.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	38.7	1 037.7	17.2	34.2	351.2	2 382.5	2 193.7	4 449.5	281.0	1 104.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	45.9	1 060.0	24.2	46.7	442.3	2 641.6	1 691.9	4 346.3	206.7	1 035.6	(NA)	(NA)
1982 Census	203	232	125	43.7	963.7	21.2	40.1	359.5	2 689.3	1 572.7	4 256.7	198.5	1 089.1	81	87
1981 ASM	(NA)	(NA)	(NA)	44.6	877.2	23.7	45.2	367.0	2 460.8	1 509.8	3 955.5	149.3	957.7	(NA)	(NA)
1980	(NA)	(NA)	(NA)	50.5	989.9	24.7	48.5	362.5	2 335.1	1 587.6	3 803.9	221.4	1 054.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	47.1	834.4	25.3	51.1	335.4	2 131.8	1 339.3	3 356.7	177.7	858.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.1	723.6	24.8	47.6	344.5	1 935.3	1 185.9	3 002.8	193.8	696.8	(NA)	(NA)
1977 Census	195	215	98	42.4	638.8	22.9	43.7	266.0	1 691.3	1 077.1	2 719.7	111.5	575.3	76	91
1976 ASM	(NA)	(NA)	(NA)	36.7	495.6	20.4	36.9	211.6	1 340.7	664.6	2 006.3	70.1	433.2	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	35.4	440.5	19.5	35.1	186.1	1 179.2	609.2	1 791.4	59.0	432.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	38.1	448.0	22.5	42.9	201.4	1 290.3	650.1	1 874.3	46.4	430.4	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	35.7	394.5	21.7	42.9	186.9	1 058.1	549.6	1 582.0	45.1	318.3	(NA)	(NA)
1972 Census	206	217	97	34.5	342.5	20.8	41.1	168.8	870.1	414.6	1 296.2	49.6	245.4	79	87

Note: Establishments of single unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. Data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were estimated based on administrative-record information from other agencies in conjunction with industry averages. These establishments accounted for the following percent of total value of shipments: SIC 3571, 8%; SIC 3572, 1%; SIC 3575, 7%; SIC 3577, 5%; SIC 3578, 10%; and SIC 3579, 6%.

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

[2]For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[5]Industry definition is new for 1987 Census of Manufactures. An explanation of the Standard Industrial Classification revision will appear in the final industry series text that supercedes this report.

[6]Although there was no change in definition or content, old SIC Industry 3574, Calculating and Accounting Machines, was renumbered to new SIC Industry 3578.

[7]Data either have associated standard errors exceeding 15 percent or are not consistent with other census series and related data; thus, these estimates may be of limited reliability.

Table 2. Product and Product Classes—Value of Shipments by All Producers: 1987 and 1982

[Includes value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987		1982	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3571- —	**ELECTRONIC COMPUTERS**				
	Total	**(NA)**	**[2]29 407.9**	**(NA)**	**([2])**
35711 —	Computers (excluding word processors, peripherals, and parts):				
35711 00	Computers (excluding word processors, peripherals, and parts) (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	242	[3]22 826.3	251	[3]10 927.6
35712 —	Parts for computers:				
35712 00	Parts for computers (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	236	4 632.0	(NA)	[4]3 932.9
35710 —	Electronic computers, n.s.k.	(NA)	[5]1 949.6	(NA)	(NA)
35710 00	Electronic computing equipment, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	[5]1 690.1	(NA)	(NA)
35710 02	Electronic computing equipment, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	[5]259.6	(NA)	(NA)
3572- —	**COMPUTER STORAGE DEVICES**				
	Total	**(NA)**	**[6]6 969.4**	**(NA)**	**([2])**
35721 —	Computer storage equipment, auxiliary:				
35721 00	Auxiliary storage equipment (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	76	[6]6 408.0	(NA)	(NA)
35722 —	Parts for computer storage equipment, auxiliary:				
35722 00	Parts for auxiliary storage equipment (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	36	522.4	(NA)	(NA)
35720 —	Computer storage devices, n.s.k.	(NA)	39.1	(NA)	(NA)
35720 00	Computer storage devices, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	6.4	(NA)	(NA)
35720 02	Computer storage devices, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	32.7	(NA)	(NA)
3575- —	**COMPUTER TERMINALS**				
	Total	**(NA)**	**[2]2 637.9**	**(NA)**	**([2])**
35751 —	Computer terminals:				
35751 00	Computer terminals (excluding point-of-sale and funds-transfer devices) (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	103	2 460.2	(NA)	(NA)
35752 —	Parts for computer terminals:				
35752 00	Parts for computer terminals (excluding point-of-sale and funds-transfer devices) (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	22	140.5	(NA)	(NA)
35750 —	Computer terminal, n.s.k.	(NA)	37.2	(NA)	(NA)
35750 00	Computer terminals, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	–	(NA)	(NA)
35750 02	Computer terminals, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	37.2	(NA)	(NA)
3577- —	**COMPUTER PERIPHERAL EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**[2]13 339.4**	**(NA)**	**([2])**
35771 —	Computer peripheral equipment, n.e.c.:				
35771 00	Input/output equipment (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	239	8 418.7	(NA)	(NA)
35772 —	Parts for computer peripheral equipment, n.e.c.:				
35772 00	Parts for input/output equipment (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	109	4 259.8	(NA)	(NA)
35770 —	Computer peripheral equipment, n.e.c., n.s.k.	(NA)	661.0	(NA)	(NA)
35770 00	Computer peripheral equipment, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	459.1	(NA)	(NA)
35770 02	Computer peripheral equipment, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	201.9	(NA)	(NA)
3578- —	**CALCULATING AND ACCOUNTING EQUIPMENT**				
	Total	**(NA)**	**[5]1 162.1**	**(NA)**	**[7]1 397.5**
35781 —	Accounting machines and cash registers:				
35781 00	Accounting machines and cash registers including funds-transfer terminals and point-of-sale terminals (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	49	(D)	46	[8]952.6
35782 —	Calculators:				
35782 00	Calculators (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	7	(D)	12	[8]250.5

See footnotes at end of table.

Table 2. Product and Product Classes—Value of Shipments by All Producers: 1987 and 1982 —Con.

[Includes value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text.]

1987 product code	Product	1987		1982	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3578- --	**CALCULATING AND ACCOUNTING EQUIPMENT**—Con.				
35783 --	Parts and attachments for calculating, accounting machines, cash registers, funds-transfer terminals, and point-of-sale terminals:				
35783 00	Parts and attachments for calculating, accounting machines, cash registers, funds-transfer terminals, and point-of-sale terminals (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	25	131.4	(NA)	[5]182.0
35780 --	Calculating and accounting machines, n.s.k.	(NA)	81.9	(NA)	12.4
35780 00	Calculating and accounting machines, n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	61.3	(NA)	[8]4.9
35780 02	Calculating and accounting machines, n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	20.6	(NA)	[8]7.5
3579- --	**OFFICE MACHINES, N.E.C.**				
	Total	**(NA)**	**3 299.5**	**(NA)**	**3 512.3**
35792 --	Automatic typing and word processing machines:				
35792 00	Automatic typing and word processing machines, parts, and attachments (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	17	1 205.8	34	1 491.5
35793 --	Duplicating machines:				
35793 00	Duplicating machines, except parts and attachments (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	7	157.7	10	158.8
35795 --	Mailing, letter handling, and addressing machines:				
35795 00	Mailing, letter handling, and addressing machines (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	33	825.0	26	387.8
35799 --	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c.:				
35799 00	Standard typewriters, dictating, transcribing, recording machines, and all other office machines, n.e.c. (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	54	606.3	68	1 122.6
3579A --	Parts and attachments for standard typewriters, dictating, duplicating, and other office machines, n.e.c.:				
3579A 00	Parts and attachments for standard typewriters, dictating, duplicating, mailing, letter handling, addressing, and other office machines, n.e.c. (for additional detail, see Current Industrial Report MA-35R, Computers and Office and Accounting Machines)	49	321.9	(NA)	306.7
35790 --	Office machines, n.e.c., n.s.k.	(NA)	182.8	(NA)	44.9
35790 00	Office machines, n.e.c., n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	123.2	(NA)	24.5
35790 02	Office machines, n.e.c., n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	59.6	(NA)	20.4

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]SIC Industries 3571, Electronic Computers; 3572, Computer Storage Devices; 3575, Computer Terminals; and 3577, Computer Peripheral Equipment, N.E.C., are published as separate industries for the first time in 1987. They were included in old SIC Industry 3573, Electronic Computing Equipment in 1982 and are not available separately.
[3]For 1982, data for product code 35711 00 were published under old SIC product code 35731 00, Computers (Excluding Word Processors, Peripherals, and Parts). For 1987, data also include computer kits to be assembled by purchaser which were included as part of old SIC product code 36629 00, Electronic Systems and Equipment, N.E.C., in 1982.
[4]For 1982, data for product code 35712 00 were published under old SIC product codes 35734 20, Parts for Computers Produced by Complete Machine Manufactures; 35735 41, Parts for Computers Produced by Other Complete Machine Manufacturers; and 35735 00, Parts, N.S.K.
[5]These data include an undeterminable amount of computer peripheral equipment manufacturers who did not totally identify their products.
[6]For 1987, magnetic storage media for computers are classified in new SIC Industry 3695, Magnetic and Optical Recording Media.
[7]For 1987, old SIC Industry 3574 was renumbered to new SIC Industry 3578.
[8]For 1982, data for new SIC product codes 35781 00, 35782 00, 35783 00, 35780 00, and 35780 02 were published under old SIC product codes 35743 00, 35744 00, 35745 --, 35740 00, and 35740 02, respectively.

Table 3. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987 Quantity[1]	1987 Delivered cost (million dollars)	1982 Quantity[1]	1982 Delivered cost (million dollars)
	INDUSTRY 3571, ELECTRONIC COMPUTERS				
	Materials, parts, containers, and supplies	**(X)**	**13 238.5**	**(X)**	**(?)**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes, 1,000 s tons	(S)	.8	(NA)	(NA)
331012	Sheet and strip, do.			(NA)	(NA)
331015	Structural shapes, do.	**16.1	32.8	(NA)	(NA)
331017	Wire and wire products, do.			(NA)	(NA)
331056	All other carbon steel mill shapes and forms, do.			(NA)	(NA)
331020	Alloy steel, except stainless, do.	(S)	(Z)	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip, 1,000 s tons	(S)	8.8	(NA)	(NA)
331050	All other stainless steel mill shapes and forms, do.			(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only), mil lb.			(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes, do.	(S)	24.7	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs, do.			(NA)	(NA)
335003	Other, do.			(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil, mil lb.			(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc., do.	(S)	89.5	(NA)	(NA)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.), do.			(NA)	(NA)
335006	Other nonferrous	(X)	(D)	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable), 1,000 s tons	-	-	(NA)	(NA)
332045	Steel, do.	*.6	1.1	(NA)	(NA)
336005	Aluminum and aluminum-base alloy, mil lb.	(D)	(D)	(NA)	(NA)
336003	Other nonferrous, do.	(D)	(D)	(NA)	(NA)
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362115	Fractional horsepower electric motors, excluding timing motors, thousands	198.0	5.6	(NA)	(NA)
362110	Timing motors, synchronous and subsynchronous, do.	(D)	(D)	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more), thousands	(D)	(D)	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	3.4	(NA)	(NA)
356201	Roller			(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	85.6	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	24.0	(NA)	(NA)
346901	Metal stampings	(X)	42.8	(NA)	(NA)
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)	(X)	77.1	(NA)	(NA)
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	(X)	21.6	(NA)	(NA)
367010	Electron tubes, except x-ray, millions	(D)	(D)	(NA)	(NA)
367408	Semiconductors	(X)	1 567.0	(NA)	(NA)
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors	(X)	414.5	(NA)	(NA)
260003	Paper and paperboard products and corrugated paper, except paperboard boxes and containers	(X)	13.1	(NA)	(NA)
265001	Paperboard boxes and containers and corrugated paperboard, 1,000 s tons	(S)	35.9	(NA)	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	1.4	(NA)	(NA)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content), mil lb.	(S)	40.9	(NA)	(NA)
335770	Magnet wire, do.	(D)	(D)	(NA)	(NA)
308006	Fabricated plastics products (except gaskets, hose, and belting)	(X)	49.7	(NA)	(NA)
	Parts for computers and peripheral equipment:				
357002	For computers	(X)	6 561.6	(NA)	(NA)
357201	For auxiliary storage equipment	(X)	367.6	(NA)	(NA)
357701	For input/output equipment	(X)	48.5	(NA)	(NA)
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)	(X)	61.2	(NA)	(NA)
366130	For communication interface equipment	(X)	5.6	(NA)	(NA)
357003	For other peripheral equipment	(X)	138.2	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	1 565.5	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	1 800.4	(NA)	(NA)
	INDUSTRY 3572, COMPUTER STORAGE DEVICES				
	Materials, parts, containers, and supplies	**(X)**	**2 708.4**	**(X)**	**(?)**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes, 1,000 s tons	(S)	.1	(NA)	(NA)
331012	Sheet and strip, do.			(NA)	(NA)
331015	Structural shapes, do.	(S)	3.3	(NA)	(NA)
331017	Wire and wire products, do.			(NA)	(NA)
331056	All other carbon steel mill shapes and forms, do.			(NA)	(NA)
331020	Alloy steel, except stainless, do.	(D)	(D)	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip, 1,000 s tons	(D)	(D)	(NA)	(NA)
331050	All other stainless steel mill shapes and forms, do.	(S)	(Z)	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3572, COMPUTER STORAGE DEVICES—Con.				
	Mill shapes and forms, except castings and forgings—Con.				
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ..... mil lb	(D)	(D)	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do	(S)	(Z)	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs ..... do	(D)	(D)	(NA)	(NA)
335003	Other ..... do	(S)	(Z)	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ..... mil lb	(S)	1.0	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ..... do	2.6	5.8	(NA)	(NA)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ..... do			(NA)	(NA)
335006	Other nonferrous	(X)	-	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ..... 1,000 s tons	(S)	.3	(NA)	(NA)
332045	Steel ..... do	(D)	(D)	(NA)	(NA)
336005	Aluminum and aluminum-base alloy ..... mil lb	(S)	12.2	(NA)	(NA)
336003	Other nonferrous ..... do	(S)	(Z)	(NA)	(NA)
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362115	Fractional horsepower electric motors, excluding timing motors ..... thousands	(D)	(D)	(NA)	(NA)
362110	Timing motors, synchronous and subsynchronous ..... do	(D)	(D)	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more) ..... thousands	-	-	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	3.6	(NA)	(NA)
356201	Roller	(X)	(Z)	(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	9.4	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	10.2	(NA)	(NA)
346901	Metal stampings	(X)	(D)	(NA)	(NA)
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)	(X)	2.4	(NA)	(NA)
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	(X)	.3	(NA)	(NA)
367010	Electron tubes, except x-ray ..... millions	-	-	(NA)	(NA)
367408	Semiconductors	(X)	50.1	(NA)	(NA)
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors	(X)	15.8	(NA)	(NA)
260003	Paper and paperboard products and corrugated paper, except paperboard boxes and containers	(X)	3.9	(NA)	(NA)
265001	Paperboard boxes and containers and corrugated paperboard ..... 1,000 s tons	**2.4	4.6	(NA)	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	.2	(NA)	(NA)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content) ..... mil lb	(D)	(D)	(NA)	(NA)
335770	Magnet wire ..... do	(S)	.1	(NA)	(NA)
308006	Fabricated plastics products (except gaskets, hose, and belting)	(X)	17.4	(NA)	(NA)
	Parts for computers and peripheral equipment:				
357002	For computers	(X)	(D)	(NA)	(NA)
357201	For auxiliary storage equipment	(X)	710.5	(NA)	(NA)
357701	For input/output equipment	(X)	(D)	(NA)	(NA)
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)	(X)	-	(NA)	(NA)
366130	For communication interface equipment	(X)	(D)	(NA)	(NA)
357003	For other peripheral equipment	(X)	(D)	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	210.5	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	134.6	(NA)	(NA)
	INDUSTRY 3575, COMPUTER TERMINALS				
	Materials, parts, containers, and supplies	**(X)**	**625.3**	**(X)**	**(3)**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ..... 1,000 s tons	(D)	(*)	(NA)	(NA)
331012	Sheet and strip ..... do	(D)	(*)	(NA)	(NA)
331015	Structural shapes ..... do	-	-	(NA)	(NA)
331017	Wire and wire products ..... do	(S)	*1.4	(NA)	(NA)
331056	All other carbon steel mill shapes and forms ..... do	-	-	(NA)	(NA)
331020	Alloy steel, except stainless ..... do	(S)	(Z)	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip ..... 1,000 s tons	(S)	(Z)	(NA)	(NA)
331050	All other stainless steel mill shapes and forms ..... do	(D)	(D)	(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ..... mil lb	(S)	(Z)	(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ..... do	-	-	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs ..... do	(S)	(Z)	(NA)	(NA)
335003	Other ..... do	-	-	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ..... mil lb	(S)	.1	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ..... do	(S)	.3	(NA)	(NA)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ..... do	-	-	(NA)	(NA)
335006	Other nonferrous	(X)	-	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3575, COMPUTER TERMINALS—Con.				
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ---- 1,000 s tons	(D)	(D)	(NA)	(NA)
332045	Steel ---- do	-	-	(NA)	(NA)
336005	Aluminum and aluminum-base alloy ---- mil lb	(D)	(D)	(NA)	(NA)
336003	Other nonferrous ---- do	(D)	(D)	(NA)	(NA)
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362115	Fractional horsepower electric motors, excluding timing motors ---- thousands	(D)	(D)	(NA)	(NA)
362110	Timing motors, synchronous and subsynchronous ---- do	(S)	.9	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more) ---- do	(S)	(Z)	(NA)	(NA)
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	(D)	(NA)	(NA)
356201	Roller	(X)	(Z)	(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	6.8	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	1.3	(NA)	(NA)
346901	Metal stampings	(X)	2.2	(NA)	(NA)
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)	(X)	6.5	(NA)	(NA)
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	(X)	(D)	(NA)	(NA)
367010	Electron tubes, except x-ray ---- millions	(S)	15.7	(NA)	(NA)
367408	Semiconductors	(X)	51.0	(NA)	(NA)
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors	(X)	33.3	(NA)	(NA)
260003	Paper and paperboard products and corrugated paper, except paperboard boxes and containers	(X)	4	(NA)	(NA)
265001	Paperboard boxes and containers and corrugated paperboard ---- 1,000 s tons	(S)	1.1	(NA)	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	(Z)	(NA)	(NA)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content) ---- mil lb	(S)	1.8	(NA)	(NA)
335770	Magnet wire ---- do	(S)	(Z)	(NA)	(NA)
308006	Fabricated plastics products (except gaskets, hose, and belting)	(X)	13.7	(NA)	(NA)
	Parts for computers and peripheral equipment:				
357002	For computers	(X)	54.1	(NA)	(NA)
357201	For auxiliary storage equipment	(X)	(D)	(NA)	(NA)
357701	For input/output equipment	(X)	(D)	(NA)	(NA)
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)	(X)	97.6	(NA)	(NA)
366130	For communication interface equipment	(X)	(D)	(NA)	(NA)
357003	For other peripheral equipment	(X)	5.0	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	192.2	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	119.0	(NA)	(NA)
	INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.				
	Materials, parts, containers, and supplies	**(X)**	**7 193.1**	**(X)**	**(3)**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ---- 1,000 s tons	*3.5	7.9	(NA)	(NA)
331012	Sheet and strip ---- do			(NA)	(NA)
331015	Structural shapes ---- do			(NA)	(NA)
331017	Wire and wire products ---- do	2.4	6.8	(NA)	(NA)
331056	All other carbon steel mill shapes and forms ---- do			(NA)	(NA)
331020	Alloy steel, except stainless ---- do	(S)	5.5	(NA)	(NA)
	Stainless steel:				
331033	Sheet and strip ---- 1,000 s tons	**1.1	5.6	(NA)	(NA)
331050	All other stainless steel mill shapes and forms ---- do			(NA)	(NA)
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ---- mil lb			(NA)	(NA)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ---- do	4.5	.8	(NA)	(NA)
335143	Plate, sheet, and strip, including military cups and discs ---- do			(NA)	(NA)
335003	Other ---- do	-	-	(NA)	(NA)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ---- mil lb	(S)	8.6	(NA)	(NA)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ---- do	(S)	5.0	(NA)	(NA)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ---- do	(S)	.2	(NA)	(NA)
335006	Other nonferrous	(X)	(5)	(NA)	(NA)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ---- 1,000 s tons	(S)	.9	(NA)	(NA)
332045	Steel ---- do	(D)	(5)	(NA)	(NA)
336005	Aluminum and aluminum-base alloy ---- mil lb	(S)	24.4	(NA)	(NA)
336003	Other nonferrous ---- do	.2	1.0	(NA)	(NA)
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362115	Fractional horsepower electric motors, excluding timing motors ---- thousands	**2 924.2	37.5	(NA)	(NA)
362110	Timing motors, synchronous and subsynchronous ---- do	(S)	7.0	(NA)	(NA)
362120	Integral horsepower motors and generators (1 hp or more) ---- do	(D)	(5)	(NA)	(NA)

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3577, COMPUTER PERIPHERAL EQUIPMENT, N.E.C.—Con.				
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	7.7	(NA)	(NA)
356201	Roller			(NA)	(NA)
344401	Sheet metal products, except stampings	(X)	65.5	(NA)	(NA)
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	23.3	(NA)	(NA)
346901	Metal stampings	(X)	15.3	(NA)	(NA)
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)	(X)	67.1	(NA)	(NA)
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	(X)	(D)	(NA)	(NA)
367010	Electron tubes, except x-ray ... millions	*1.4	8.6	(NA)	(NA)
367408	Semiconductors	(X)	182.5	(NA)	(NA)
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors	(X)	334.3	(NA)	(NA)
260003	Paper and paperboard products and corrugated paper, except paperboard boxes and containers	(X)	14.0	(NA)	(NA)
265001	Paperboard boxes and containers and corrugated paperboard ... 1,000 s tons	(S)	23.1	(NA)	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	(X)	4.7	(NA)	(NA)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content) ... mil lb	(S)	2.6	(NA)	(NA)
335770	Magnet wire ... do	(D)	(D)	(NA)	(NA)
308006	Fabricated plastics products (except gaskets, hose, and belting)	(X)	109.6	(NA)	(NA)
	Parts for computers and peripheral equipment:				
357002	For computers	(X)	1 530.6	(NA)	(NA)
357201	For auxiliary storage equipment	(X)	35.7	(NA)	(NA)
357701	For input/output equipment	(X)	604.5	(NA)	(NA)
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)	(X)	(D)	(NA)	(NA)
366130	For communication interface equipment	(X)	(D)	(NA)	(NA)
357003	For other peripheral equipment	(X)	1 450.3	(NA)	(NA)
970099	All other materials and components, parts, containers, and supplies	(X)	51 507.8	(NA)	(NA)
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	1 084.7	(NA)	(NA)
	INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT				
	Materials, parts, containers, and supplies	**(X)**	**565.9**	**(X)**	**654.9**
	Mill shapes and forms, except castings and forgings:				
	Carbon steel:				
331011	Bars and bar shapes ... 1,000 s tons	(D)	(D)		
331012	Sheet and strip ... do	(D)	(D)		
331015	Structural shapes ... do	(D)	(D)	(S)	9.3
331017	Wire and wire products ... do	(D)	(D)		
331056	All other carbon steel mill shapes and forms ... do	(D)	(D)		
331020	Alloy steel, except stainless ... do	-	-	(Z)	(Z)
	Stainless steel:				
331033	Sheet and strip ... 1,000 s tons	(D)	(D)	(D)	(D)
331050	All other stainless steel mill shapes and forms ... do	(S)	(Z)	(D)	(D)
	Copper and copper-base alloy:				
335728	Bare wire (for electrical conduction only) ... mil lb	-	-	(D)	(D)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes ... do	(S)	(Z)	-	-
335143	Plate, sheet, and strip, including military cups and discs ... do	(D)	(D)	(D)	(D)
335003	Other ... do	-	-	(D)	(D)
	Aluminum and aluminum-base alloy:				
335301	Sheet, plate, and foil ... mil lb			(D)	(D)
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc. ... do	(S)	2.4	(D)	(D)
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.) ... do			(D)	(D)
335006	Other nonferrous ... do	(X)	(D)	(X)	(*)
	Castings (rough and semifinished):				
332011	Iron (gray and malleable) ... 1,000 s tons	(S)	(Z)	(D)	(D)
332045	Steel ... do	(D)	(D)	(D)	(D)
336005	Aluminum and aluminum-base alloy ... mil lb	(D)	(D)	(D)	(D)
336003	Other nonferrous ... do	(D)	(D)	-	-
	Electric motors and generators:				
	Fractional horsepower electric motors (less than 1 hp):				
362115	Fractional horsepower electric motors, excluding timing motors ... thousands	(D)	(D)	(S)	1.1
362110	Timing motors, synchronous and subsynchronous ... do	169.1	2.4	(S)	3.0
362120	Integral horsepower motors and generators (1 hp or more) ... thousands	-	-	-	-
	Bearings, including mounted and unmounted:				
356218	Ball	(X)	.3	(X)	(Z)
356201	Roller			(X)	(Z)
344401	Sheet metal products, except stampings	(X)	6.5	(X)	5.5
345001	Bolts, nuts, screws, rivets, and screw machine products	(X)	9.2	(X)	3.5
346901	Metal stampings	(X)	16.1	(X)	6.7
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)	(X)	4.9	(X)	6.5
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices	(X)	.4	(X)	12.8
367010	Electron tubes, except x-ray ... millions	(S)	1.7	(S)	4.0
367408	Semiconductors	(X)	54.3	(S)	82.1

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material		1987		1982	
			Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3578, CALCULATING AND ACCOUNTING EQUIPMENT—Con.					
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors		(X)	82.2	(X)	124.7
260003	Paper and paperboard products and corrugated paper, except paperboard boxes and containers		(X)	(D)	(X)	(D)
265001	Paperboard boxes and containers and corrguated paperboard	1,000 s tons	(S)	2.8	(D)	(D)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets		(X)	(D)	(X)	(Z)
335792	Insulated copper wire and cable, except magnet wire (quantity of copper content)	mil lb	(S)	1.9	(D)	(D)
335770	Magnet wire	do	(D)	(D)	(D)	(D)
308006	Fabricated plastics products (except gaskets, hose, and belting)		(X)	17.7	(X)	27.2
	Parts for computers and peripheral equipment:					
357002	For computers		(X)	16.1		
357201	For auxiliary storage equipment		(X)	(D)		
357701	For input/output equipment		(X)	12.6		
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)		(X)	(D)	(X)	104.5
366130	For communication interface equipment		(X)	(Z)		
357003	For other peripheral equipment		(X)	6.1		
970099	All other materials and components, parts, containers, and supplies		(X)	114.6	(X)	[6]124.4
971000	Materials, parts, containers, and supplies, n.s.k.[2]		(X)	197.8	(X)	102.3
	INDUSTRY 3579, OFFICE MACHINES, N.E.C.					
	Materials parts, containers, and supplies		**(X)**	**1 108.1**	**(X)**	**1 257.7**
	Mill shapes and forms except castings and forgings:					
	Carbon steel:					
331011	Bars and bar shapes	1,000 s tons	*4.1	4.4	(S)	14.0
331012	Sheet and strip	do	*9.8	12.3	(S)	21.2
331015	Structural shapes	do			* 8	1.7
331017	Wire and wire products	do	(S)	1.8	(S)	7.0
331056	All other carbon steel mill shapes and forms	do	**1.0	.5	1.3	2.6
331020	Alloy steel, except stainless	do	(D)	(D)	*2.0	2.6
	Stainless steel:					
331033	Sheet and strip	1,000 s tons	(S)	.5	(S)	7.8
331050	All other stainless steel mill shapes and forms	do	.2	.8	**.3	1.8
	Copper and copper-base alloy:					
335728	Bare wire (for electrical conduction only)	mil lb	(D)	(D)		
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	do	(S)	(Z)	(S)	3.6
335143	Plate, sheet, and strip, including military cups and discs	do	(D)	(D)		
335003	Other	do	(D)	(D)	(S)	1.1
	Aluminum and aluminum-base alloy:					
335301	Sheet, plate, and foil	mil lb	(S)	6.3	(S)	3.0
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.	do	(S)	1.4	(S)	3.5
335008	All other aluminum mill shapes and forms (wire, rolled rod and bar, powder, welded tubing, etc.)	do	(S)	.3	(S)	10.4
335006	Other nonferrous		(X)	6.2	(X)	(6)
	Castings (rough and semifinished):					
332011	Iron (gray and malleable)	1,000 s tons	(D)	(D)	(S)	2.3
332045	Steel	do	(D)	(D)	(S)	11.3
336005	Aluminum and aluminum-base alloy	mil lb	(D)	(D)	(S)	9.3
336003	Other nonferrous	do	(D)	(D)	(S)	1.2
	Electric motors and generators:					
	Fractional horsepower electric motors (less than 1 hp):					
362110	Timing motors, synchronous and subsynchronous	thousands	(S)	2.2	(S)	12.7
362115	Fractional horsepower electric motors, excluding timing motors	do	1 480.7	13.1	(S)	27.4
362120	Integral horsepower motors and generators (1 hp or more)	do	(S)	1.2	**10.3	1.8
	Bearings, including mounted and unmounted:					
356218	Ball		(X)	9.2	(X)	4.1
356201	Roller				(X)	3.6
344401	Sheet metal products, except stampings		(X)	10.5	(X)	26.1
345001	Bolts, nuts, screws, rivets, and screw machine products		(X)	9.6	(X)	11.0
346901	Metal stampings		(X)	13.1	(X)	26.3
360101	Electric transmission, distribution, and control equipment (including switchgear, fuses, transformers, relays, regulators, etc.)		(X)	51.1	(X)	59.1
364301	Appliance outlets, switches, lampholders, and other current-carrying wiring devices		(X)	5.6	(X)	16.1
367010	Electron tubes, except x-ray	millions	(D)	(D)	(S)	10.8
367408	Semiconductors		(X)	33.9	(X)	58.4
367002	Resistors, capacitors, transformers, transducers, and other electronic-type components and accessories, except semiconductors		(X)	51.9	(X)	36.0
260003	Paper and paperboard products, except paperboard boxes and containers		(X)	8.1	(X)	11.3
265001	Paperboard boxes and containers	1,000 s tons	(S)	8.4	(S)	10.7
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets		(X)	5.7	(X)	5.8
335792	Insulated wire and cable, except magnet wire (quantity of copper content)	mil lb	(S)	4.5	(S)	1.7
335770	Magnet wire	do	(D)	(D)	(S)	2.0
308006	Fabricated plastics products (except gaskets, hose, and belting)		(X)	20.6	(X)	39.0

See footnotes at end of table.

Table 3. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3579, OFFICE MACHINES, N.E.C.—Con.				
	Parts for computers and peripheral equipment:				
357002	For computers	(X)	48.0		
357201	For auxiliary storage equipment	(X)	(D)		
357701	For input/output equipment	(X)	58.8		
357501	For computer terminals (excluding point-of-sale and funds-transfer devices)	(X)	(D)	(X)	183.2
366130	For communication interface equipment	(X)	(D)		
357003	For other peripheral equipment	(X)	23.5		
970099	All other materials and components, parts, containers, and supplies	(X)	345.2	(X)	[4]458.6
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	281.5	(X)	147.6

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]Industry definition is new for 1987; and therefore, 1987 data for materials consumed are not comparable to prior-year data. As a result, 1982 materials consumed data are not available.

[4]For 1987, material codes 331011, 331012, and 331017 are combined to avoid disclosing data for individual companies.

[5]Data are included with material code 970099 to avoid disclosing data for individual companies.

[6]For 1982, data for material code 335006 were not collected separately but included with material code 970099.

APPENDIX
Scope and Coverage and Explanation of Terms

GENERAL

The 1987 Census of Manufactures is the 32nd census of manufacturing establishments conducted in the United States. For 1987, it was conducted as part of the economic censuses, which included the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses, under authority of title 13 of the United States Code. Title 13 specifies that an economic census be conducted every 5 years to cover years ending in 2 and 7.

SCOPE AND COVERAGE

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. All manufacturing establishments with one paid employee or more at any time during the year are covered by the census of manufactures. Therefore, a company operating at more than one location is required to file a separate report for each location. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units which service manufacturing establishments of the same company. Where these auxiliary operations are conducted at the same location as the manufacturing operation, they are usually included in the report for the operating manufacturing establishment.

Use of Administrative Records

From a universe of approximately 350,000 manufacturing establishments in the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so the administrative-record cases would account for approximately 3 percent or less of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 20 employees were included. Where establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was frequently used.

For these nonmail establishments, (and a small number of larger establishment whose reports were not received at the time the data were tabulated) data on employment, payroll, and receipts were obtained from administrative records of other government agencies rather than from census forms. The administrative-record information was then used in conjunction with industry averages to estimate the data for these establishments. The value of shipments and cost of materials were not distributed among specific products and materials but were included in the product and material "not specified by kind" (n.s.k.) categories.

EXPLANATION OF TERMS

Number of establishments and companies–A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

All employees–Includes all full-time and part-time employees on the payrolls at any time during the year. Included are all persons on paid sick leave, paid holidays, and paid vacations. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Production workers–Includes workers up through the working-supervisor level engaged in fabricating, processing, assembling, inspecting, receiving, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial, guard services, product development, auxiliary production for plant's own use (e.g., powerplant), recordkeeping, and other closely associated services. Truckdrivers delivering ready-mixed concrete are also included in production workers.

Other employees–Includes nonproduction personnel, including those engaged in the following activities: supervision above working-supervisor level, sales (including driver/salespersons), sales delivery (truckdrivers and helpers), advertising, credit collection, installation and

servicing of own product, clerical and routine office functions, executive, purchasing, finance, legal, personnel (including cafeteria, etc.), professional, and technical employees.

Payroll–Includes the gross earnings for the "employees" defined above, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Respondents were told that in reporting they could follow the definition of payrolls used for calculating the Federal withholding tax.

Production-worker hours–Covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave when the employee was not at the plant.

Cost of materials–Refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuels consumed, regardless of whether they were purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (a) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year; (b) electric energy purchased; (c) fuels consumed for heat, power, or generating electricity; (d) work done by others on materials or parts furnished by manufacturing establishments (contract work); and (e) products bought and resold in the same condition.

Specific materials consumed (table 3)–In addition to the total cost of materials which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. These inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which administrative records were used was estimated as "not specified by kind" (n.s.k.).

Value of shipments and other receipts–Generally refers to received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts such as receipts for contract work performed for others, installation and repair receipts, sale of scrap, and sale of products bought and resold without further processing. Included are all items made by or for the establishment from materials owned by it whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In a few industries, the value of production or value of work completed is used instead of value of shipments. These industries are identified in the introduction and are footnoted in table 1.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, that is, including not only the direct costs of production but also a reasonable proportion of "all other costs" (including company overhead and profit).

Shipments or production of individual products (table 2)–In the 1987 census, detailed shipment information was collected for approximately 11,000 individual products. These products are identified by a seven-digit code and are grouped into approximately 1,500 classes of products, which in turn are primary to 459 four-digit industries. Data at the five-digit product-class level have been collected each year as part of the annual survey of manufactures. Information at the seven-digit level, collected for many industries in the current industrial reports program, is not included in this table.

Value added by manufacture–This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments for products manufactured plus receipts for services rendered. The result of this calculation is then adjusted by the addition of value added by merchandising operations (that is, the difference between the sales value and cost of merchandise sold without further manufacturing, processing, or assembly) plus the net change in finished goods and work-in-process inventories between the beginning and end of the year.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1), value added is adjusted only for the change in work-in-process inventories between the beginning and end of the year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

Value added avoids the duplication in the figure for value of shipments which results from the use of products of some establishments as materials by others. Value

added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

Expenditures for new plant and equipment–Establishments in operation and any known plants under construction were asked to report their expenditures for (a) permanent additions and major alterations to manufacturing establishments and (b) new machinery and equipment used for replacement and additions to plant capacity if they are of the type for which depreciation accounts are ordinarily maintained.

These totals exclude expenditures for used plant and equipment, expenditures for land, and cost of maintenance and repairs charged as current operating expenses. Data for used plant and equipment will be published in the final industry bulletin.

End-of-year inventories–Comprised of (a) finished products; (b) work-in-process; and (c) materials, supplies, fuels, etc. Beginning in 1982, respondents were asked to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Therefore, 1982 through 1987 data for inventories are not strictly comparable to prior-year data.

Specialization and coverage ratios–An establishment is classified in a particular industry if its shipments of primary products of the industry exceed in value its shipments of the products of any other single industry. An establishments' shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). The following ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in table 1 and data on product shipments shown in table 2.

Specialization ratio–Represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio–Represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments, wherever classified.